~~SYNOPSIS of CANYON DIABLO~~ (21) #17
[Miscellaneous 1]
(27)

Box 27 Folder 62

circa 1945-1952

Content # 27

Miscellaneous 1

① One page of handwritten bibliography by MacNeish
② Note on a location in Oaxaca (in Spanish)
③ Handwritten manuscript by MacNeish on Tamaulipas (3 pp.)
④ Handwritten manuscript by MacNeish - "Chapter II - Prehistoric Finds antecedent to the Discovery of Tepexpan [Man]" (1 p)
⑤ Handwritten manuscript by MacNeish on La Concepción, Campeche, Mexico and worked fossil bone of Tequesquiapan (sp?)
⑥ Notes (by MacNeish?) on soils of TM 82 (Tamaulipas)
⑦ Letter + report w. graphs from F. Lionel Peckover and R. de Wit, of the Geological Survey, Canada, to MacNeish on analysis of soil samples from Northern Mexico
⑧ Handwritten Letter from Alex Krieger to Jimmy Griffin, June 8, 1949, about a geological report (see also Box 107, Content # 20)
⑨ Graphs and handwritten analysis of soil sediments in New Mexico
⑩ Report fr. Glen L. Evans on deposits in TM$^{c}$ 81 (Tamaulipas), June 6, 1949
⑪ Notes on Alluvial Terraces in Canyon Diablo, Tamaulipas, Mexico (1 p.)

JGL

ARCHIVAL QUALITY

# Bibliography


DeTerra, Helmut, Javier Romero and T. D. Stewart "Tepexpan Man". Viking Fund Publications in Anthropology; No 11., New York, 1949.

Ekholm, Gordon "Excavations at Tampico and ~~Panuco~~ Pánuco in the Huastec, Mexico, APAMNH, Vol XXXVIII, pt. V, New York, 1944

P. Kirckhoff "Mesoamerica" Acta Americana vol I, No. 1. published by the Inter-American Society of Anthropology and Geography, Washington, D.C., 1943

R.S. MacNeish, A Preliminary Archaeological Survey of Coastal Tamaulipas, Mexico, American Antiquity, Vol. XIII, No. 1, Menasha, Wisc., 1947

G. Saldivar Gabriel "Historia Compendida de Tamaulipas, Nuestra Patria, Apartado Postal 10266 Mexico, D.F., 1945

Vivo, Jorge "Geografia de Mexico". Fondo de Cultura Economica, Panuco 63, Mex. D.F. 1949

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Tamazulapam, Oax.

Sobre la carretera a la Ciudad de Oaxaca, lado izquierdo de la carretera.

~~A~~ Helmut de Terra says of the gravels in Tm 81 that "the gravels are difficult to interprete because we are on the flanks of the valley where sedimentation was varied, actually in the talus of limestone bluffs. The fact that you have stream laid gravels approximately 40 feet below suggests you have the remenant ~~remnant~~ of a stream terrace but the stream terrace in the immediate neighborhood must be extensively investigated."[12] Of the high terrace in the Canyon Diablo he states "The thickness of the terrace and the fairly well rounded shape of the pebble constituent as well as the redish coloring of the silt clay stated in the high terrace argue for a stream laid origin which under the present climate is unthinkable. Particularly when the red soil and thickness are considered. Considering further that there are lower terraces less thick and narrower and, also, that the lower terrace has no redish soil and is more brown silt it would seem that the lower terrace might be of middle recent when moist conditions prevailed. The high terrace therefore might represent the last pluvial. This assumption could be checked by.....etc." [13]

Of the tan calcareous sand and silt in which were found the Lerma occupation Evans says, "The character of sorting and lack of bedding in this member lead me to suspect that it was deposited by wind from an adjacent stream bed." De Terra says the sands were probablely aelian" and that they are "pedalfer soils

remnant

redish

Quotation p. 5.

(12) De Terra personell communication

(13) Ibid,

(14) G. Evans, opp. cit.

indicative a humid type of climate". Further that "possible time of pedalfer soil must be quite early due to their coloring. ~~No red colors alluvial due pedalfers soils must have been enough water or humidity to make the iron oxide in the soil from the limestone~~

" This soil might be just after the time of the terrace (the humid late pluvial) and in the dry period of early recent times, ~~15~~ 8000 to 12000 years ago."

In summary, the geological evidence concerning these two early cultures is inconclusive though there are indications of some antiquity. Interestingly enough, a basal portion of a broken projectile point of a Levalloisian type was found by De Terra in association with the materials of ~~early Recent times~~ the Tepexpan industry date as being of early Recent times

15. – De Terra

16. de Terra, "Tepexpan Man" opp. cit.

confirmed or checked by ~~[illegible]~~ future analysis.

Both the Lerma and Diablo cultures were associated with geological data and phenomena indicative of some antiquity.[10] Unfortunately, no skeletal forms have been found in situ in the Canyon Diablo; the canton has not been analyzed nor the animal bone (fossilized and otherwise) from the excavations classified. The ~~Diablo~~ culture ~~is~~ Diablo culture is associated with gravels of the high or earliest terrace laid down in the Canyon Diablo while the Lerma Focus ~~is~~ is in a tan calcareous sand and silt overlying the terrace gravels and in part overlayen by a layer composed of small stream gravel.

Every cross of the gravel strata ~~in~~ with which the Pueblo artifacts were found revealed "well rounded, clean, coarse gravels with some interbedded sand, exposed only in a small section near the bottom of the outer trench wall.

The gravel is in part of a small erosional remnant of a terrace, apparently the third terrace of Canyon Diablo. The highest point of the gravel that is definitely in place is 37 feet above the gravel and boulder bed of the present stream channel, and 27 feet above the highest level at which gravel has been recently been deposited."[11] Of the terraces and particularly the third terrace, he states the following, ~~[illegible]~~ "

"It is not improbable that the terraces of Canyon Diablo are of approximately the same age as the corresponding terraces in the southwestern United States, although it is obviously impossible to set up a definite correlation, either as to origin

~~[illegible]~~ down to "Diablo terraces."

10 G. Evans "Notes on Alluvial Terraces in Canyon Diablo,
11. Ibid Tamaulipas Mountains, Tamaulipas, Mexico, manuscript.

# Chapter II

## Prehuastec Finds Incident to the Discovery of Tepexpan

Once the the consideration of the previous chapter has been done, it is fitting to focus the attention to the part that is the explanation, as complete as possible, the series of supposed prehistoric discoveries made in our country years ago and especially in the last quarter of past century. It was a period of extraordinary activity in the field of prehistoric investigation in Mexico. Perhaps this efervescence was owed in part to the notable discoveries of fossil man in Europe. Since that period, a kind of typology came to succeed it, which had not disappeared until the discovery of Tepexpan.

The bibliography evolving on prehistoric questions in Mexico, starting Tepexpan man, is able to be divided into 2 principal groups: Bone remains and including archaeological remains. This will be the order which we follow in order to examine them.

1. Bone remains

### The Man of Peñon

The artifacts of La Concepcion, Campeche, DF consists of a relatively abundant collection of artifacts of flint, which in color, superficially, packed on what was without doubt a great working surface abundant chunks without retouching and rejected cores at the same time with true artifacts. The implements were found there, resting directly on loose limestone which the author identifies as the Pleistocene stage. Unfortunately there was no settlement which covered them since the quarrying formerly made by the Maya, was especially severe in the region.

From a strictly typological view, it is necessary to confess that the artifacts of La Concepcion, present a aspect of most generic prehistoric, able to be compared, with the author here, with the of the lowest form of European, paleolithic industry, with laudable reserve, indicate that the relation is simply made on a base of typology.

He explored the region carefully and did not find marks of pottery nor any other objects of recent origin. In the same collection there is lacking completely the technique of grinding & polishing and grinding or well formed objects as points of projectile retouched with stems and tangs, fragments of axes & metates, things all of which generally we consider of recent stage when found in a lithic industry. The artifacts of La Concepcion are completely different to any other complex of stone of this same archaeological horizon, from the aspect, formation, form of the technique of work which we represent even in uniform the specimens that have exposed by Dr. Engerrand which we have by their prehistoric antiquity

In most of magnificent flakes which illustrate the work of professor Gabriel, I have had the opportunity to examine the collection which actually is found in the Institute of Paris and which unfortunately has not been preserved completely. The objects, in the greater majority are made of flint almost white, very homogeneous and what ought to be said at first, is that generally the industry consists of burgules and choppers and hand axes although are relatively frequently are chosen pieces of the large flakes taken by percussion. On these core there does not exist any secondary retouching. But as exception there appear various scrapers made from chunks and also worked which show a belt of percussion clearly, some of the scrapers show retouching and signs of silence use. A great part of the instruments have a heavy patina very unappreciable in the surface work. It is of note that the nature of the raw material to guess the economy of its use. It does not seem to those people dedicated to agriculture and gathering of natural plant since they took completely means, metals, etc.

2. Industries & archeological remains.

The earliest forest bone of Tetrameryx. It is a curious fact that the finest archeological object found in Mexico in such circumstances that have to be ranked as prehistoric, may be perhaps the most important ~~prehistoric~~ precolumbian relique which has been discovered up to the present. Mexican civilization is that of ~~the~~ the important nucleus of

Started 9:50 T 82 where the Road Began by first leaving off Top Strata of square to cut in the west side of the main road and west of the see I was such deep. Next Level was all in the Limb. Above on all other points go down to Level 3

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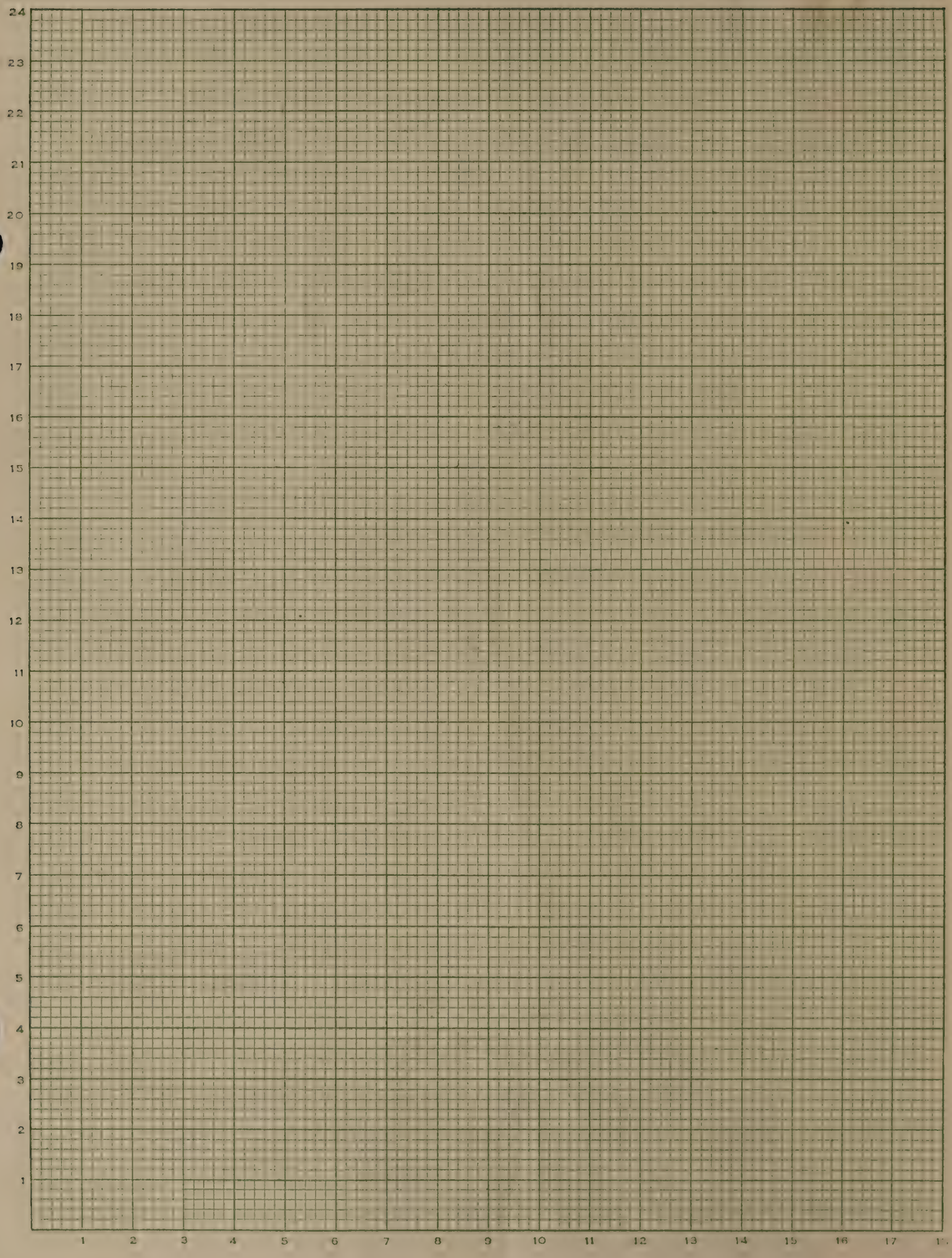
Top - yellow sand - podalfer soil - Characteristic of a humid type of climate -

Fossils difficult to interpret because we are on flanks of the valley where outcrop is varied. Probably in Calcareous Bluffs. The fact that you have shown land ground 40 feet below suggest for low mound of oyster shells. But where terrace or immediate neighborhood must be considered.

Possible lens of podalfer soil must be early date to allowing. The red colored clay was not enough water to make on more than on the east from the limestone. The red might be post oak [illegible] of high terrace (not planted)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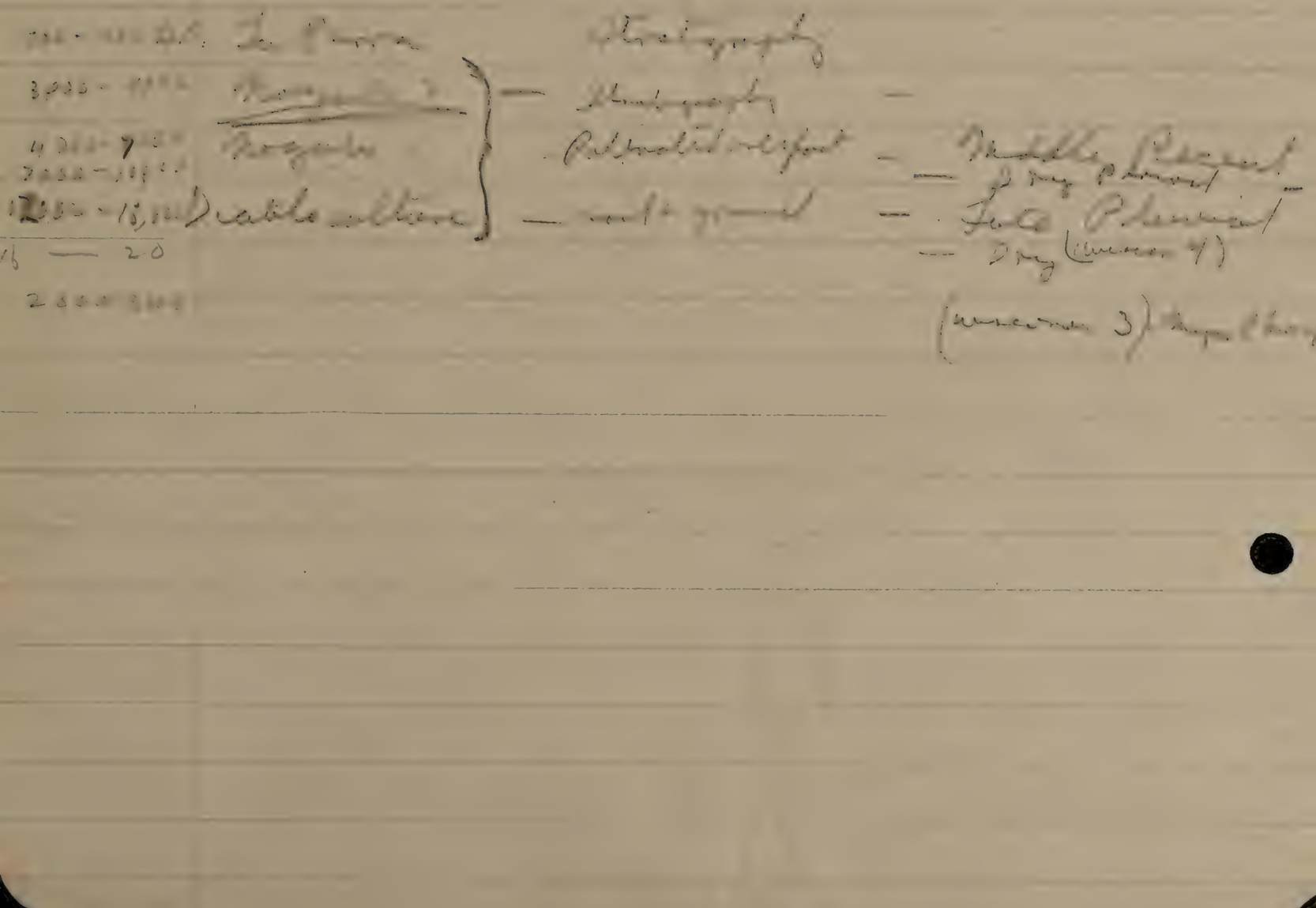

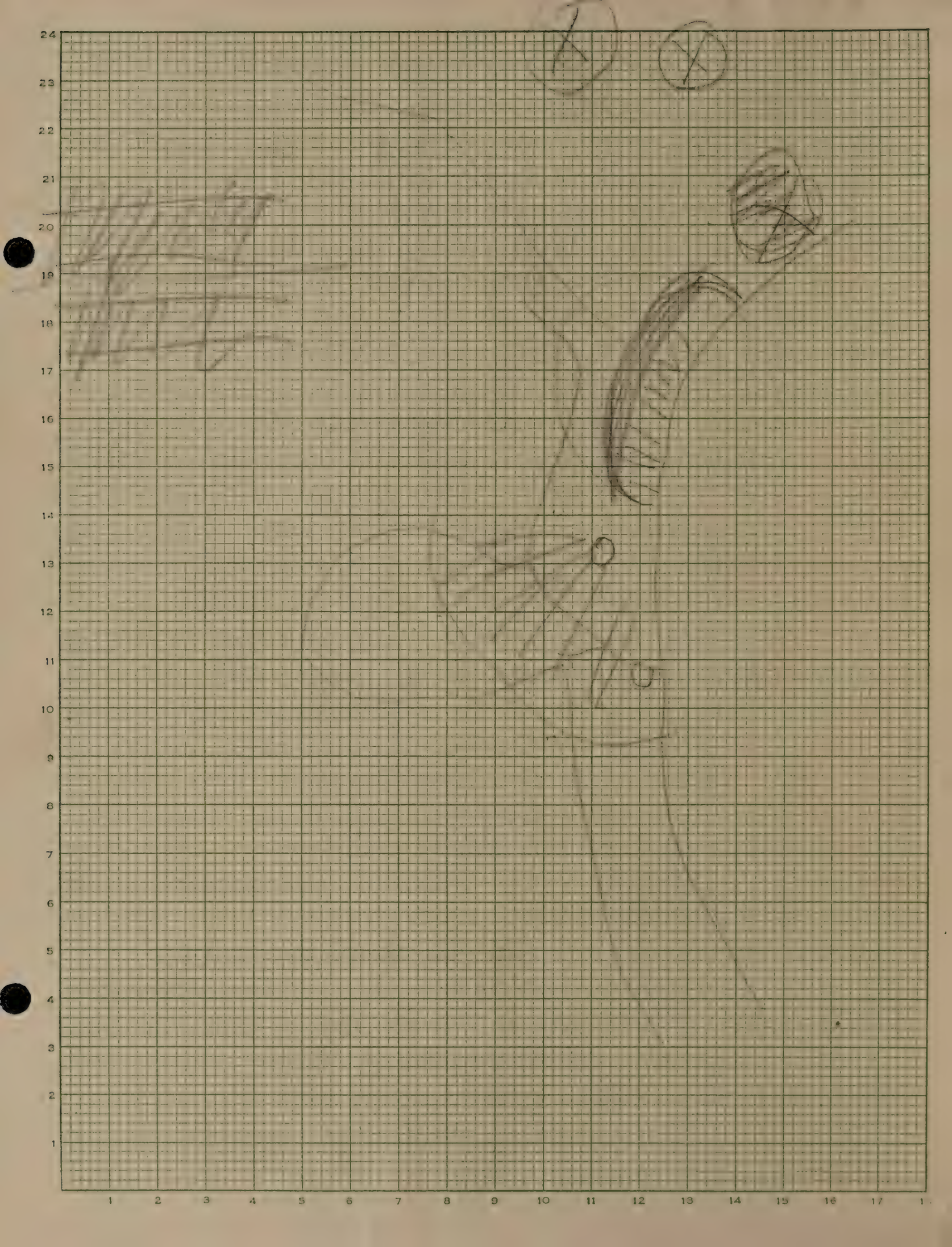

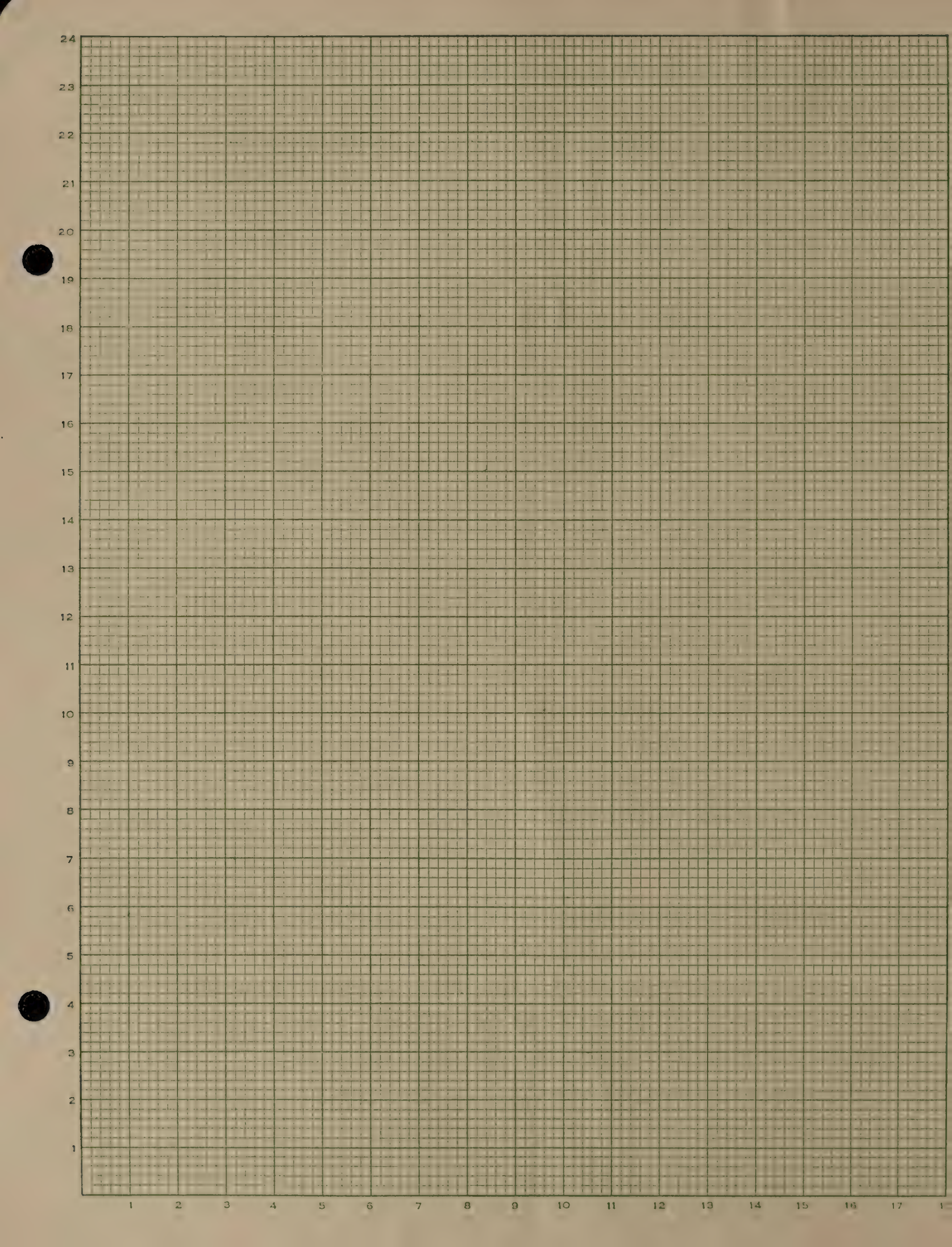

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IN YOUR REPLY PLEASE QUOTE

FILE No. M43-4-2

YOUR REFERENCE .....

NATIONAL RESEARCH COUNCIL

CANADA

DIVISION OF
BUILDING RESEARCH

OTTAWA,
January 24, 1952.

Dr. R.S. MacNeish,
Victoria National Museum,
Ottawa, Ont.

Dear Dr. MacNeish:

We have now analyzed the grain size characteristics of the three samples of soils from caves in Northern Mexico which you sent to us last December. These have been entered on our files as samples 35-1, 2 and 3.

Results of the tests are plotted in the usual manner of per cent finer by weight against grain size on the accompanying semilog charts. We had some difficulty in conducting the tests since two of the three samples did not remain dispersed when a weak solution of sodium silicate was used. By using sodium oxalate as the dispersion agent, however, we obtained satisfactory results.

You will notice that whereas samples 35-1 and 2 show a common type of curve for silty-sand material, the curve for sample 35-3 is quite irregular. Material coarser than 1/4 inch is not present in the proportion one would expect in the sample which we received, but this is probably due to the small size of the sample.

Yours sincerely,

F. Lionel Peckover

F. Lionel Peckover,
Assistant Research Officer.

FLP:EM

52-349

Report on three samples of soils from caves in Northern Mexico

submitted by R. S. MacNeish

R. deWit, Geological Survey of Canada, November 15, 1951.

Sample 1. Clay, calcareous, sandy, brown. - from Lower Level Tm '51

The sample is most probably composed of particles of different origin which represent a clay group and a sand group. The clay is fine with a fair amount of quartz silt and possibly fine sand, but the silt is not plentiful or well sorted enough to indicate an Aeolian origin. In it sponge spicule was found of Hexactinellidae-type, which suggests possibly Mesozoic age (Jurassic-Cretaceous?). If the limestone rock is of post-Palaeozoic age this fossil might suggest that the clay is residual.

The sand is fairly coarse-grained. The grains are angular to sub-angular, many of them are tiny chert fragments. The grains have a diameter of up to 400 mu. The sand seems to be a contamination which might have been brought in by animals or by men.

Sample 2. Clay, calcareous, sandy, brown. - upper Level Tm '51

Similar to Sample 1, but there is more sand present, which

consists in part of fine angular chert chips, and which seems to contain a fairly high percentage of heavy minerals. There are also more rounded grains present than in Sample 1. Similar to Sample 1, Sample 2 is probably composed of constituents of different origin.

Sample 3. Clay very calcareous, buff-brown. - Middle and T... 174

The clay consists mainly of particles which are smaller than 20 mu.; few coarser grains reach up to 40 mu. in diameter. The dominating fractions of silt size (20 to 40 mu.), which are often characteristic of Aeolian loess, do not occur in this sample, and it seems more likely that Sample 3 is a residual clay, a concentration of insoluable residue of the surrounding carbonate rocks.

Conclusions. A proper grain size analysis should be made of the samples. This would provide more reliable data regarding the origin of the clay.

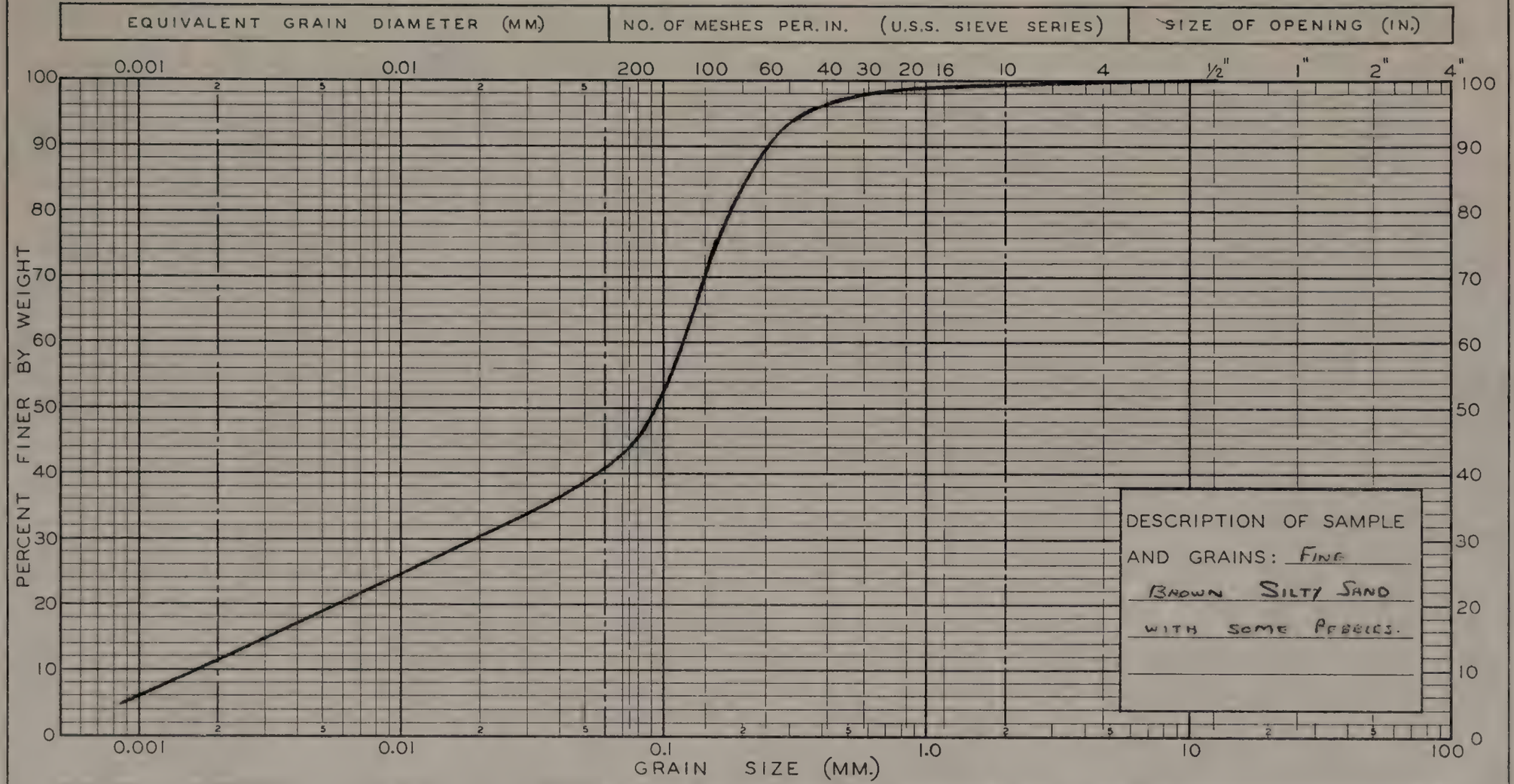
A preliminary microscopical study provides, tentatively, the following data. All three samples have in common that they do not contain typical well-sorted Aeolian silts. Samples 1 and 2 contain sand which is probably foreign material. A spicule, found in Sample 1, may indicate that the clay is a residual product of leaching and weathering. The indication

of the age of the spicule, as mentioned above, is little more than a guess.

The deposit will most likely have formed under moist and warm climatic conditions, which were realized in the Late Mankato substage or during the post-glacial temperature optimum. (The post-glacial warm and humid stage in Western Europe has been roughly dated from 5000 to 3000 B.C.)

More information could possibly be obtained with pollen analysis.

# MECHANICAL ANALYSIS OF SOILS




| CLAY | FINE | SILT | COARSE | FINE | SAND | COARSE | FINE | GRAVEL | COARSE |
|---|---|---|---|---|---|---|---|---|---|

M.I.T. GRAIN SIZE CLASSIFICATION

PROJECT: Geological Survey

SAMPLE NO. 35-1

PLOTTED: NFE DATE: 21-1-52

CHECKED: _____ DATE: _____

REMARKS: _____

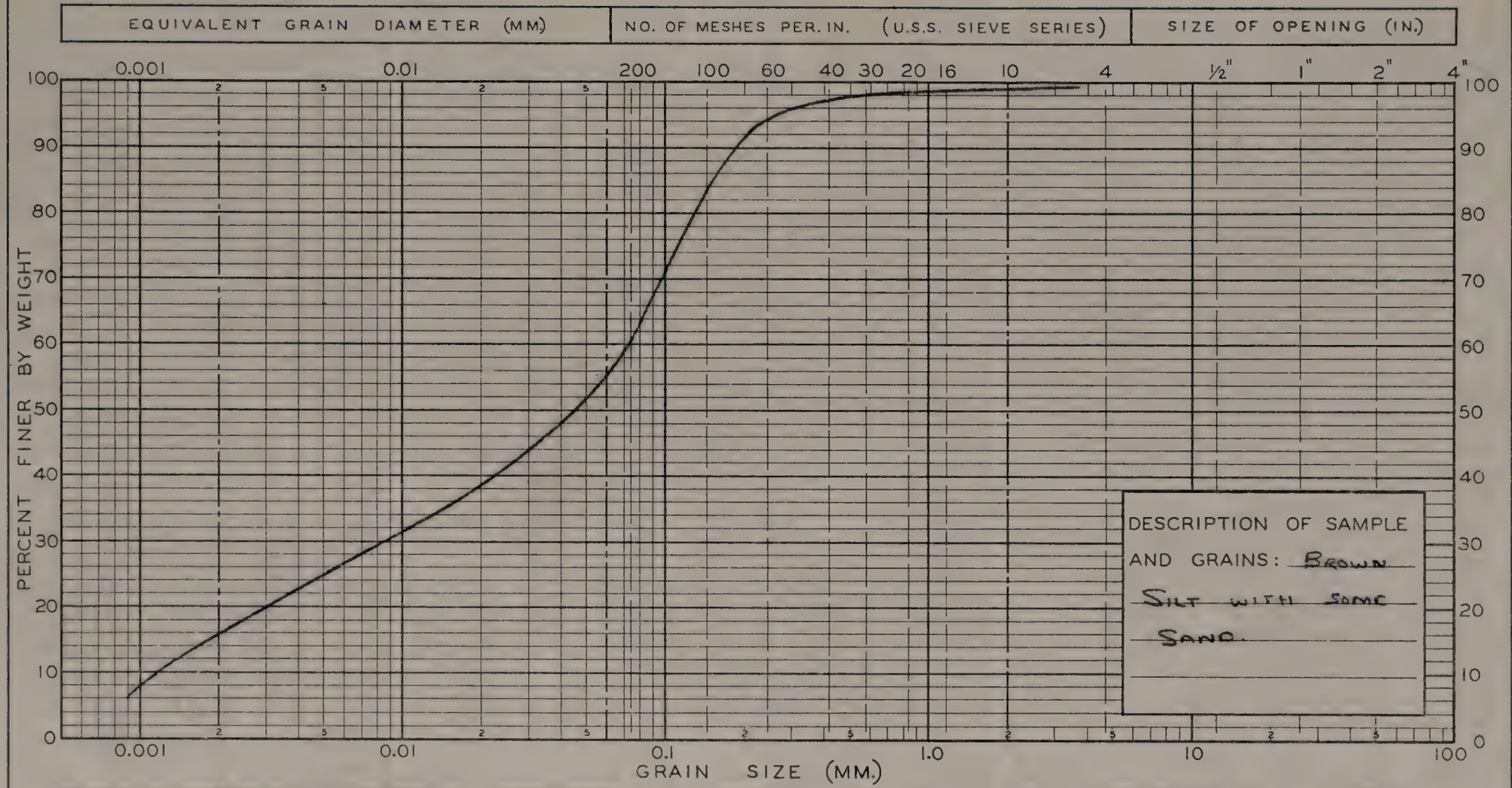
SOIL MECHANICS LABORATORY
DIVISION OF BUILDING RESEARCH
NATIONAL RESEARCH COUNCIL
OTTAWA CANADA

SAMPLE NO. _____

T.N.D.

S.M. FORM 8 14/2/48

# MECHANICAL ANALYSIS OF SOILS




| CLAY | FINE | SILT | COARSE | FINE | SAND | COARSE | FINE | GRAVEL | COARSE |
|---|---|---|---|---|---|---|---|---|---|

M.I.T. GRAIN SIZE CLASSIFICATION

PROJECT: Geological Survey

SAMPLE NO. 35-2

PLOTTED: JE DATE: 21-1-52.

CHECKED: DATE:

REMARKS: Sp. Gr Fines = 2.73

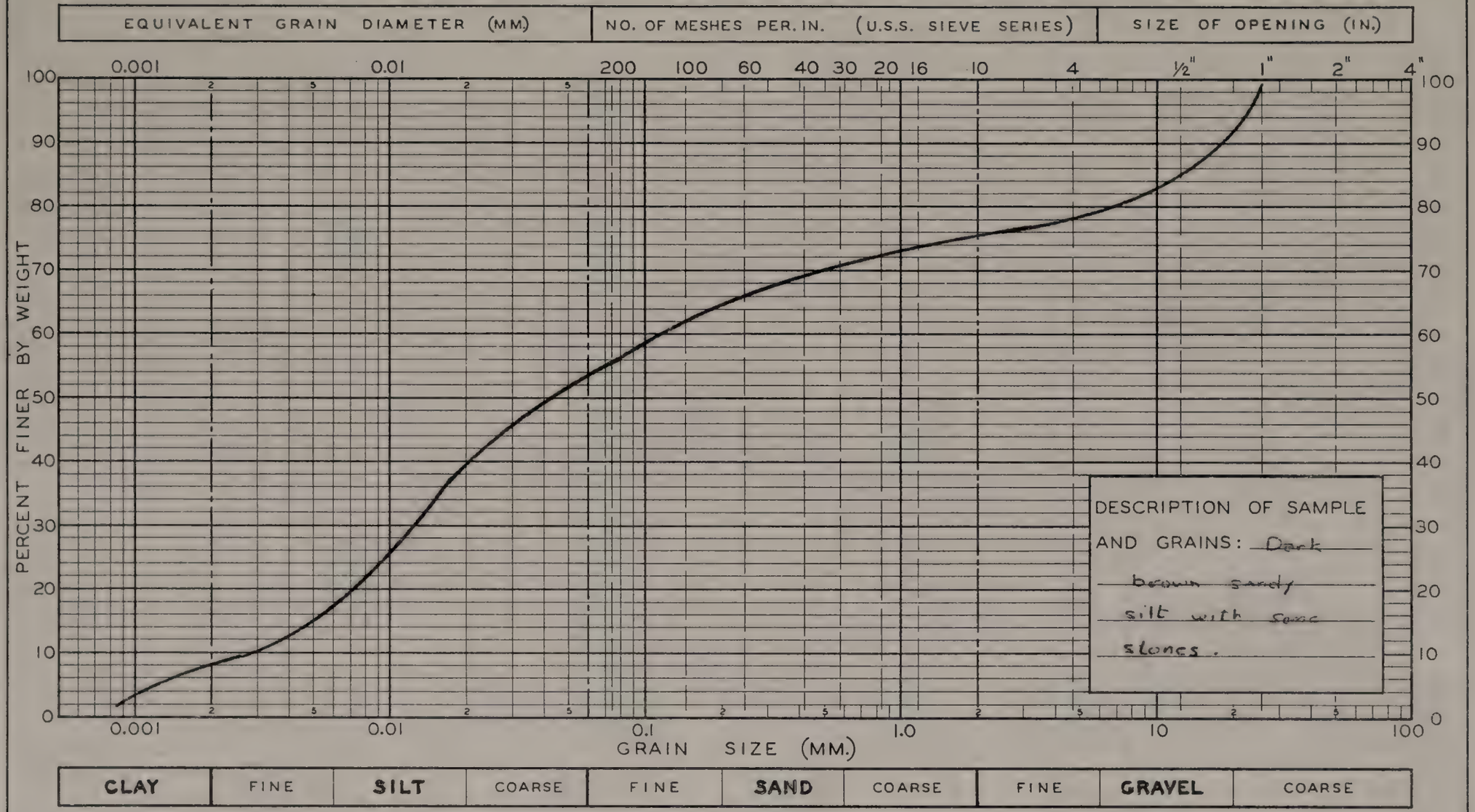
SOIL MECHANICS LABORATORY
DIVISION OF BUILDING RESEARCH
NATIONAL RESEARCH COUNCIL
OTTAWA CANADA

SAMPLE NO.

T.N.D.

S.M. FORM 8 14/2/48

# MECHANICAL ANALYSIS OF SOILS




| CLAY | FINE | SILT | COARSE | FINE | SAND | COARSE | FINE | GRAVEL | COARSE |
|---|---|---|---|---|---|---|---|---|---|

M.I.T. GRAIN SIZE CLASSIFICATION

PROJECT: Geological Survey

SAMPLE NO. 35-3

PLOTTED: MJE DATE: 21-1-52.

CHECKED: DATE:

REMARKS:

SOIL MECHANICS LABORATORY
DIVISION OF BUILDING RESEARCH
NATIONAL RESEARCH COUNCIL
OTTAWA CANADA

SAMPLE NO.

T.N.D.

S.M. FORM 8 14/2/48

Please Return

June 8, 1949

Dear Jimmy:

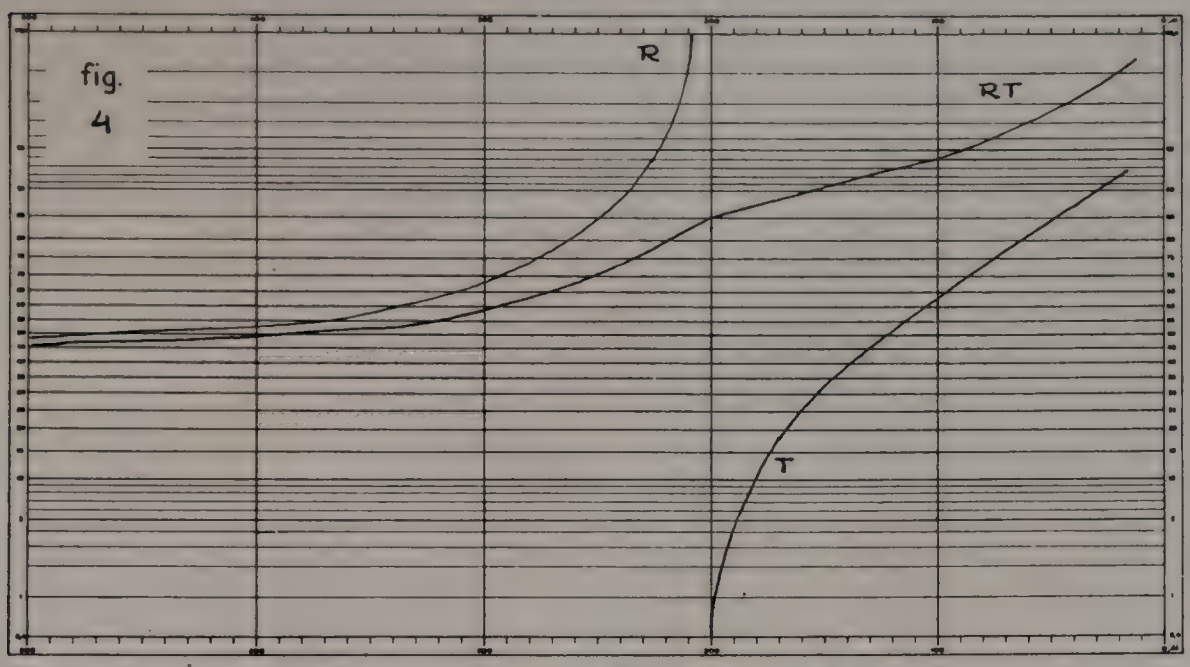
Glen just left town and asked me to send this Ms. to Scotty. According to Scotty's plans, when we were in Tamaulipas, he expected to be out of Mexico by June 3rd or 4th, then to go to Canada. Perhaps he will stop in Ann Arbor to see you, about now.

If you know Scotty's address in Canada, would you please forward this Ms. to him, or hold it if you expect him in Ann Arbor soon.

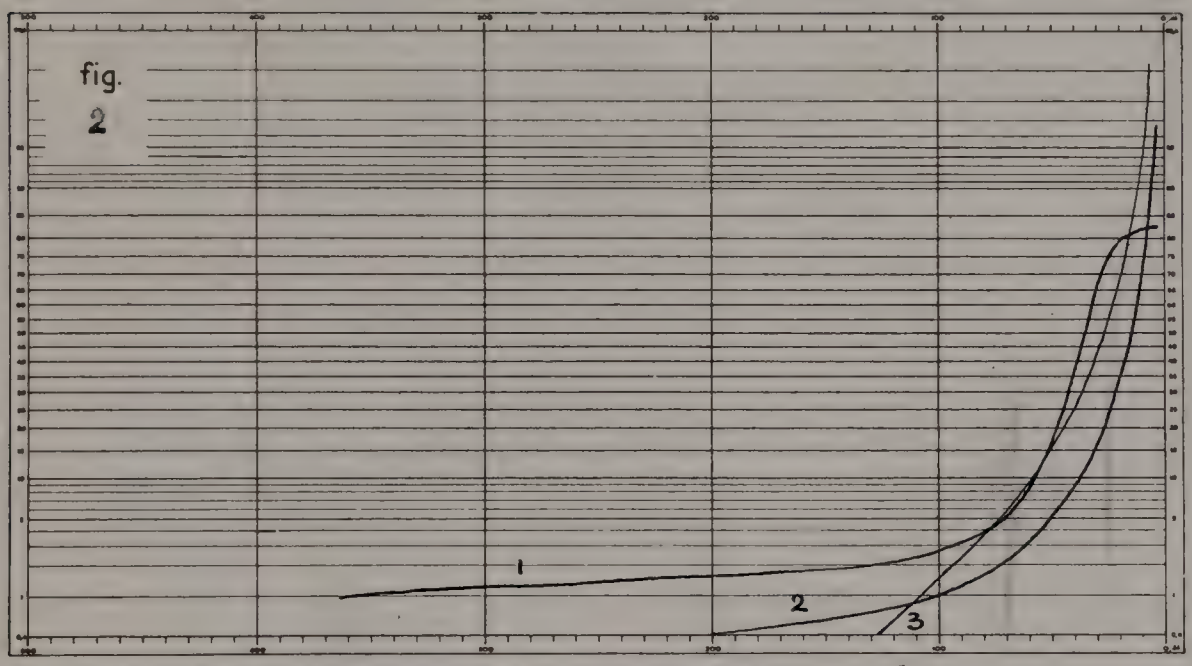
The geological report is negative so far as a possible dating of the cave sites are concerned. It has to be that way, for even if some of the artifacts from T Mc 81 were in the gravel, the gravel itself may be only a post-terrace increment of no significance in the time scale. Scotty is much too enthusiastic and certain about a "geological dating" there. Glen and I can't see it.

Were you the one who sent me the Occasional Contributions, Nos. 12, 13, 14, and the Anthropological

## CALCULATED CURVES AFTER DOEGLAS 1950

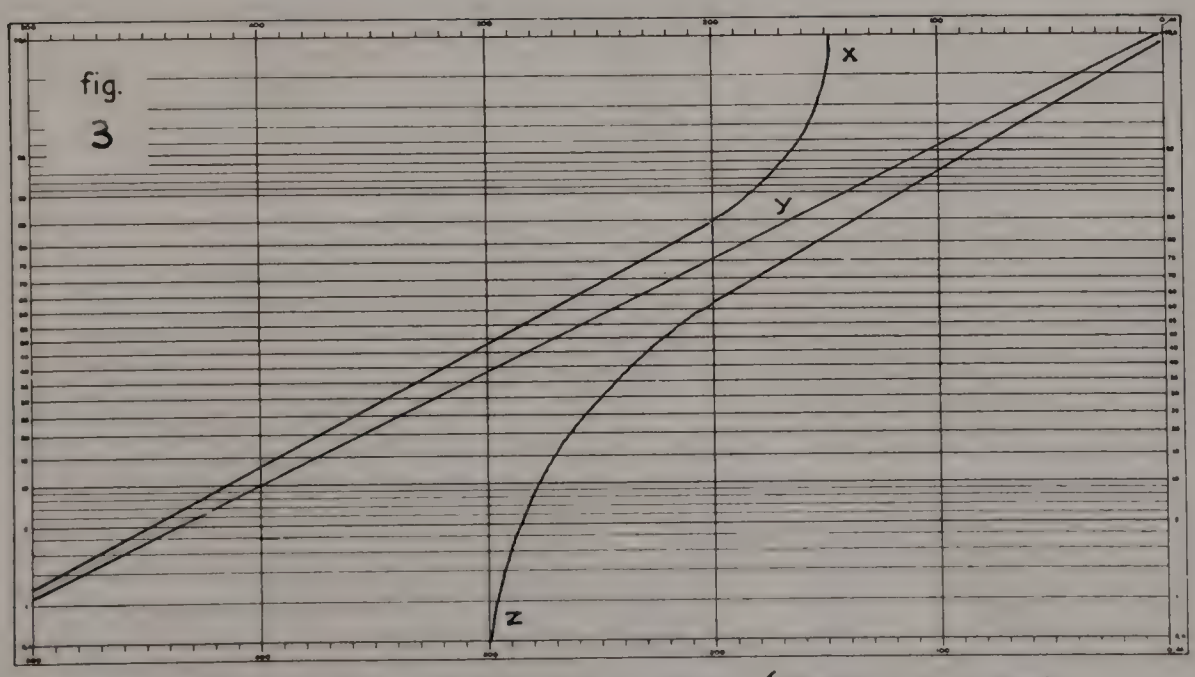



RT IS RESULT OF MIXING 90% R WITH 10% T




1 LOESS, AVERAGE OF 19 SAMPLES _ THE NETHERLANDS
2 LOESS _ MISSISSIPPI VALLEY, R.J. RUSSELL 1944
3 LOESS _ " " , J.A. UDDEN 1914

## THEORETICAL SIZE FREQUENCY (DOEGLAS 1950)




Y GRAINS HAVE GAUSS-DISTRIBUTION (STRAIGHT LINE)
X = SAMPLE Y, BUT GRAINS, SMALLER THAN 147 μ, NOT PRESENT
Z = " Y, " " LARGER " 147 μ, " "

The analysis shows that all three samples should be called "argillaceous sand". Most probably they are composed of sand and clay as seperate constituents.

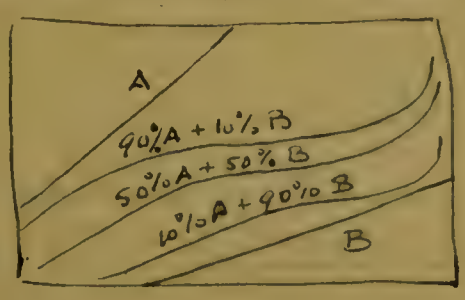
Fig 1. Size frequency of the three New Mexico samples plotted on probability paper. The curves show 1. that the deposit is not a loess. The silt fractions are too small. (silt can be considered all particles between 62.5 and 16 μ)
2. The curvature back to near-horizontal in sample 1 (at 100μ) and in sample 2 (at 60μ) is significant.

Fig 2. Size frequency of loess shows difference from Fig 1, in having excess of well sorted silt.

Fig 3. Shows principles of interpreting probability paper: Most sediments tend to have frequence in accordance to Gauss probability paper. An ideal sediment Y gives a straight line. If either finer parts or coarser particles are washed out or blown out a different curve is formed.
Curve X is calculated from Y, all particles smaller than 147 μ have been eliminated. The result is an upward bending on the right hand.
Curve Z is also derived from Y, but all particles larger than 147μ have been eliminated - downward curving to the left.

Fig 4. Shows theoretical mixture of 90% R and 10% T. The resulting curve RT is similar to the New Mexico samples 1 and 2 (and probably to 3, although not as obviously)

A mixture of two "normal" sediments with Gauss distribution would be as follows.
Note ⌒ in left part of curves.
Which is different from sample 1 and 2
This type is common in river deposits



Interpretation of Samples 1, 2 and 3.

The shape of the curves shows that the deposits are not loess.

Curves similar to 1, 2 and 3 occur in stream channels of rivers. From a point of view of grain pattern they ~~could~~ can be fluvial. Another possibility is that these brown soils are a mixture of residual clay and sand. which was either brought in by men or animals or washed in from over the top of the cliff. Which of the explanations is right has to be decided by examining the local geology.

Many of the coarse particles, if not all, are foreign to the deposit. ~~Many of~~ Small fragments of flint, due to manufacturing of artefacts, are common.

Curve 3 of sample 3 has an abnormal amount of pebbles. The horizontal attitude in the sand fractions indicates that ~~the~~ grains ~~between~~ of intermediate sizes are present only in minor amounts.

More insight could be gained by examining the original figures from the granular analysis.

I am beginning to believe, more than previously, that the deposits can be fluvial. Fluvial deposits are usually well stratified, with marked pebble horizons.

Notes on Site TMc 81:

McNeish's excavation at this site is in floor debris of a small rock shelter on the west wall of Canyon Diablo about 4 miles downstream from Site TMc 82. A general description of the deposits exposed in the excavation follows:

1. Refuse, consisting of broken, angular limestone pebbles with fine-grained silt and ashes. This zone rests by irregular contact on next lower zone. Maximum exposed thickness . . . . . 1.5 ft.

2. Calcareous sand and silt, compact, massive, tannish color. A small fire pit penetrating this member is filled with refuse from the overlying layer. The character of sorting and lack of bedding in this member leads me to suspect that it was deposited by wind from an adjacent stream bed. Maximum measured thickness 3.0 ft.

3. Angular limestone fragments and boulders with numerous small flint spalls. Zone is locally cemented by calcium carbonate which was apparently deposited by seep water from bedding planes in back wall of shelter. A thin lens of small stream gravel mixed with soil overlies the zone at one place on the south edge of the trench but it is not possible to ascertain whether this gravel was deposited in place by the stream or secondarily deposited by slope-wash from a source higher up on the canyon wall. Maximum exposed thickness of zone . . . . . 3.5 ft.

4. Well rounded, stream-laid gravel with some interbedded sand, exposed only in a small section near bottom of outer trench wall. The gravel is a part of a small erosional remnant of a terrace, apparently the third terrace of Canyon Diablo. The highest point of the gravel that is definitely in place is 37 feet above the

gravel and boulder bed of the present stream channel, and 27 feet above the highest level at which gravel has recently been deposited. This gravel zone and zone 3 are not now seen superimposed, due to the excavations and to severe erosion of the site. Consequently, the relationship of the two zones is not entirely clear.

Glen L. Evans

Glen L. Evans

June 6, 1949

# Notes on Alluvial Terraces in Canyon Diablo, Tamaulipas Mountains, Tamaulipas, Mexico

General comment:

The section of Canyon Diablo examined lies roughly 10 miles southeast of the village of Los Angeles in Tamaulipas, Mexico. Examinations were made at and between McNeish's excavated archeological sites designated as sites TMc 81 and TMc 82, a total distance of about 4 miles along the canyon's course. Examination was made in company of Alex D. Krieger, May 6 to 8, 1949.

The canyon is entrenched to a depth of several hundred feet in hard, uniformly-bedded Mesozoic limestones. The upper canyon walls are heavily vegetated, moderate to steep slopes, while the lower walls bordering the stream bed are steep slopes and precipitous, meander-cut bluffs. The bed-rock bed of the modern stream channel is covered by an undetermined thickness of coarse limestone gravels and boulders with occasional bars of finer grained material on the slack-water side of channel meanders. The stream bed, now completely dry, obviously flows only during times of unusually heavy rainfall. At the present time, degradation appears to be in excess of alluviation in this part of the stream course.

Alluvial Terraces:

Remnants of at least three alluvial terraces are preserved in Canyon Diablo and also in its tributary, Canyon Pinal, which enters Canyon Diablo from the west side at a point ~~approximately midway~~ between sites TMc 81 and TMc 82.

Tamaulipas Mountains, Tamaulipas, Mexico

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~~SYNOPSIS of CANYON DIABLO~~ (21) #17

[Miscellaneous 1]

(27)